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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/480,338	Applicant(s) TAKAHASHI ET AL.	
	Examiner Melanie M Vida	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,14-24 and 29-36* is/are rejected.

7)☒ Claim(s) *10-13,25-28, 33-36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement(s) (IDS) submitted on 1/7/00 has been considered by the examiner and is attached to this office action.

Specification

2. The abstract of the disclosure is objected to because of undue length. According to 37 CFR 1.72(b), an abstract is not to exceed 150 words in length when the application is filed under 35 U.S.C. 111. Correction is required. See MPEP § 608.01(b).

Examination of this application reveals that it includes terminology, which is different from that which is generally accepted in the art to which this invention pertains. For example: The **CIE/L*a*b*** color space is information of an image signal related to lightness/brightness (L*), and the two chrominance channels, **(a*, b*)**. On the contrary, the specification recites "the color image signal includes information related to brightness, chroma and hue subject to vector operation in the **CIE/L*a*b*** color space", (pg. 25, lines 16-19). The normal representation of luminosity (**L**), chroma (**C**), and hue (H) representation is named the **LCH** color space, as well known in the art. The application uses the appropriate color space terminology **L*-C** plane, as shown in figure 9 as it relates to the disclosure, (pg. 54, lines 17-21).

Applicant is required to provide a clarification of these matters or correlation with art-accepted terminology so that a proper comparison with the prior art can be made. Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

3. The disclosure is objected to because of the following informalities: Examination of the application reveals unclear sentences, "The point of convergence computation part 103 determines whether the source color provided by the color image signal from the point of convergence computation execution determination part 102 has the same hue value as one of the representative colors of the information-input apparatus 21", and "...the representative colors of the information-input apparatus 21..." (pg. 33, lines 6-12; lines 28-29). The specification might be more meaningful if –the information-input apparatus 21—is replaced with –information-output apparatus 22--, because the source color is produced by the information input (21) and coupled to the compression execution determination part 101, as shown in figure 1 (lines 11-12; lines 29). However, if there is indeed a step for converting the source color from the information-input apparatus to a representative color of the information-input apparatus, then this should be more clearly stated in the disclosure.

Appropriate correction is required.

Drawings

4. **Figure 8** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g), (pg. 3, lines 1-3; pg. 24, lines 23-24).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because drawings 2 through 4 illustrate an **L*a*b*** color space, while drawings 5 through 10 illustrate the **LCH** color space. It is unclear after examination of the application, what the advantage is for the applicant to transform **L*a*b*** to

LCH color space for the latter set of drawings, and not drawings 2 through 4, as well. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because drawing 1 is stated to be a color gamut compression apparatus according to a first embodiment of the present invention, (pg. 24, line 2-4). However, after examination of the application, the Applicant's refer to drawing 1, for many of the other embodiments as well. For example, drawing 1 is referred to in the 2nd embodiment (pg. 40, line 1, 16; pg. 41, line 19, 21, 23, 25); the 3rd embodiment, (pg. 44, line 20); the 4th embodiment, (pg. 48, line 29-30); the 5th embodiment, (pg. 52, line 8); the 6th embodiment, (pg. 53, line 25, pg. 54, lines 27, 30); the 7th embodiment, (pg. 56, lines 12, 18, 20).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 5-8, 17-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

After examining the application, specifically on page 28, line 20 through page 29, line 8, and page 40, line 11 through page 43, line 23, the **claims 5-8, and 17-20** are still unclear to the Examiner, as follows:

Claim 5 states "...transitions from the representative color Green to the representative colors Cyan, Blue, and Magenta ... based on a digital signal value corresponding to the representative color Blue ..." are unclear (lines 4-5; and 11). More specifically, it is unclear how the color green transitions to the colors cyan, blue, and magenta? Further it is unclear why the point of convergence lies in the color Blue?

Claim 6 states "...said point of convergence computes the source the point of convergence such that the point of convergence has the same hue value as a hypothetical color reproduced by the information-output apparatus based on a digital signal value corresponding to the representative color Cyan, lies inside the color gamut of the information-output apparatus and is chromatic" is unclear (lines 6-13). More specifically, it is unclear if the point of convergence is the same as the input value, that transitions from red to yellow, or if the point of convergence is cyan.

Claim 7 states, "...said point of convergence computes the source the point of convergence such that the point of convergence has the same hue value as a hypothetical color reproduced by the information-output apparatus based on a digital signal value corresponding to the representative color Blue, lies inside the color gamut of the information-output apparatus and is chromatic" is unclear (lines 6-13). More specifically, it is unclear if the point of convergence is the same as the input value, that transitions from magenta to red, or if the point of convergence is cyan.

Claim 8, states, "...said point of convergence computes the source the point of convergence such that the point of convergence has the same hue value as a hypothetical color reproduced by the information-output apparatus based on a digital signal value corresponding to

the representative color Blue, lies inside the color gamut of the information-output apparatus and is chromatic" is unclear (lines 6-13). More specifically, it is unclear if the point of convergence is the same as the input value, that transitions from yellow to green, or if the point of convergence is blue.

Regarding, **claims 17-20,** please refer to the corresponding rejection in claims 5-8, respectively above.

9. **Claims 5 and 17,** recite the limitation "the representative color Green", and "the representative colors Cyan, Blue, and Magenta" in lines 4-5, respectively. There is insufficient antecedent basis for this limitation in the claim.

10. **Claims 6 and 18,** recite the limitation "the representative color Red", "the representative color Yellow", "the representative color Cyan" in lines 4-5, 11-12, respectively. There is insufficient antecedent basis for this limitation in the claim.

11. **Claims 7 and 19,** recite the limitation "the representative color Magenta", "the representative color Red", "the representative color Blue", and the "representative color Cyan", in lines 4-5, lines 11-12, line 20, respectively. There is insufficient antecedent basis for this limitation in the claim.

12. **Claims 8 and 20,** recite the limitation "the representative color Yellow", "the representative color Green", "the representative color Blue", and the "representative color Cyan", in lines 4-5, line 11, line 20, respectively. There is insufficient antecedent basis for this limitation in the claim.

13. **Claims 31, 33-36**, recite the limitation "color gamut compression apparatus" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. These should be changed to –color gamut compression method—in lines 1-2.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

15. **Claims 1-8, 14-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Ohta, US Patent 5,875,260 (hereinafter, Ohta).

Regarding, **claim 1,** Ohta teaches, as shown in figure 1, a processing unit (400) and all the components of the processing unit therein, under the control of a CPU (460) using the RAM (480), based on programs stored in ROM (470), which reads on "a color gamut compression apparatus", (col. 3, lines 42-47). An input unit (410), a component of the processing unit (400)

converts input image data (201) to R, G, B data, which reads on "for converting a source color", from the external apparatus (490), which reads on "generated by an information-input apparatus", (col. 3, lines 28-31). The input unit (410) outputs the R, G, B data of the input color gamut (201), as shown in figure 3(a), to the color conversion unit (430), that converts this data into R', G', B', reproducible by the output color gamut (202) and a CMYK conversion unit (440) outputs C, M, Y, K data in the output color gamut (202), which reads on "into a target color inside a color gamut..." of the image forming unit (450), which reads on "...reproducible by an information-output apparatus", (col. 3, lines 34-42). Ohta teaches of a parabolic function generator unit (105), which reads on "a point of convergence computation part", that computes a parameter (A) based on the hue (h), which reads on "for computing a point of convergence", for each hue, so that the direction of gamut mapping can be controlled for each hue, as shown in figures 2, 3(a), 3(b), 3(c) such as for an output color point (211) that lies in a color gamut of a hard copy printer (202), which reads on "for a chromatic color such that the point of convergence has the same hue value as a hypothetical chromatic color that would be reproduced by the information-output apparatus", based on an input color point (209) that lies in a color gamut of a CRT monitor (201), which reads on "based on a digital signal value for the information-input apparatus corresponding to a color determined by a source color, and lies inside the color gamut of the information-output apparatus", (col. 4, lines 40-43; 51-54; 63-66). Ohta inherently teaches, of a "first point of compression computation part", as evidenced by equation 3, and figures 3(b)-3(c), for computing an output point (y), which reads on "for computing a point of compression", (col. 4, lines 45-48). The point of compression (211), lies on the right of an equihue line, which reads on "such that the point of compression lies on a substantially straight line connecting the

point of convergence and the source color, and lies inside the color gamut of the information-output apparatus, (col. 5, lines 8-11; lines 60-61). As shown in figure 2, the RGB inverse conversion unit (107), and the CMYK conversion unit (440), which read on "a compression part", compress the RGB input color from frame memory (42) into an output color gamut of an image forming unit (450), which reads on "converting the source color into a target color corresponding to the point of compression computed by said first point of compression computation part", (col. 5, lines 61-64).

Regarding, **claim 2,** Ohta teaches that the first point of compression (211), as shown in figure 3(a), which reads on "wherein said first point of compression part, computes the point of compression" lies at the intersection of the parabolic line (210), which reads on "such that the point of compression is at an intersection of the substantially straight line", and the boundary of the output color gamut (202) of the printer, which reads on "and a boundary of the color gamut of information-output apparatus".

Regarding, **claim 3,** Ohta inherently teaches, "a point of convergence computation execution determination part for determining whether the source of is a chromatic color or an achromatic color" as evidenced by situations wherein the color saturation (C) is approaching achromatic (when the color saturation is low), the computed parameter (A) that depends only on the hue (h) value is corrected using equation 4, to obtain a corrected parameter (A') that depends on both hue and color saturation (C), (col. 5, lines 35-45). Ohta inherently teaches, "a second point of compression computation part for computing, when said point of convergence computation part determines that the source color is an achromatic color, the point of compression such that the point of compression lies inside the color gamut of the information-

output apparatus and has a zero chroma", as evidenced by substituting the corrected parameter (A'), into equation 3, in place of the uncorrected computed (A), when the color saturation is low, (col. 4, lines 42-47; col. 5, lines 35-42).

Regarding, **claim 4,** Ohta teaches, as shown in figure 3(a), that the parameter, (A) equals 0, or the parameter (A) approaches zero, for a low input color saturation (C), or achromatic color, a parameter (A') is computed to obtain the same hue value, which reads on "said point of convergence part computes the point of convergence such that the point of convergence has the same hue value as a hypothetical color reproduced by the information-output apparatus based on a digital signal value corresponding to the matched representative color, lies inside the color gamut of the information-output apparatus and is achromatic", (col. 5, lines 6-8; col. 35-41). Further, Ohta teaches if the value of hue (H) is between the G, and C input colors, the value (A) corresponding to the hue of the input signal is obtained by performing a linear interpolation between the set values, as shown in figure 3(C), which reads on "when the source color is intermediate adjacent representative colors with respect to hue, the point of convergence is computed by linear interpolation of points of convergence corresponding to the adjacent representative colors", (col. 5, lines 15-18).

Regarding, **claims 5-8, and 17-20,** as best understood from the claim language, please refer to the corresponding rejection in claim 4.

Regarding, **claim 14,** please refer to the corresponding rejection in claim 1.

Regarding, **claim 15,** please refer to the corresponding rejection in claim 3.

Regarding, **claim 16,** please refer to the corresponding rejection in claim 4.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. **Claim 9** is rejected under 35 U.S.C. 103(a) as being obvious over Ohta US Patent No. 5,875,260, as applied to claim 1 above, and further in view of Takahashi et al. US Patent No. 6,560,356, (hereinafter, Takahashi).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or

subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding, **claim 9,** Ohta teaches the color gamut compression apparatus of claim 1, but fails to expressly disclose, that the point of convergence computation part computes the point of convergence such that the point of convergence has the same brightness level as one of four values for the hue value which is determined by the source color, the four values being maximum chroma, mean value of the color gamut, gravitational center value of the color gamut, and median of the color gamut.

However, Takahashi teaches, as shown in figures 3, that the point of convergence is the same point for brightness of the highest chroma (C; Saturation), which reads on "said point of convergence computation part computes the point of convergence such that the point of convergence has the same brightness level as one of four values for the hue value which is determined by the source color, the four values being maximum chroma", (col. 13, lines 1-5). The point of convergence has a point with an average value of the color gamut, which reads on "mean value of the color gamut", a point with a weighted value of the color gamut of the information input apparatus, which reads on "gravitational center value of the color gamut", and a point with a central value of the color gamut of the information-input apparatus, which reads on "median of the color gamut", (col. 10, lines 34-45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Ohta's color gamut compression apparatus, with Takahashi's point of convergence computation part.

One of ordinary skill in the art would have been motivated to use Takahashi's point of convergence computation part in order to perform color gamut processing with higher reliability with respect to tonal direction, given the express suggestion of Takahashi, (col. 13, lines 13-15).

18. **Claim 21-24, and 29-32** are rejected under 35 U.S.C. 103(a) as being obvious over Ohta US Patent No. 5,875,260, as applied to claim 14, above, respectively, and further in view of Takahashi et al. US Patent No. 6,560,356, (hereinafter, Takahashi).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding, **claim 21,** Ohta teaches, as shown in figure 1, a processing unit (400) and all the components of the processing unit therein, under the control of a CPU (460) using the RAM (480), based on programs stored in ROM (470), which reads on "a color gamut compression apparatus", (col. 3, lines 42-47). An input unit (410), a component of the processing unit (400) converts input image data (201) to R, G, B data, which reads on "for converting a source color", from the external apparatus (490), which reads on "generated by an information-input apparatus", (col. 3, lines 28-31). The input unit (410) outputs the R, G, B data of the input color gamut (201), as shown in figure 3(a), to the color conversion unit (430), that converts this data into R', G', B', reproducible by the output color gamut (202) and a CMYK conversion unit (440) outputs C, M, Y, K data in the output color gamut (202), which reads on "into a target color inside a color gamut..." of the image forming unit (450), which reads on "...reproducible by an information-output apparatus", (col. 3, lines 34-42). Ohta teaches of a parabolic function generator unit (105), which reads on "a point of convergence computation part", that computes a parameter (A) based on the hue (h), which reads on "for computing a point of convergence", for each hue, so that the direction of gamut mapping can be controlled for each hue, as shown in figures 2, 3(a), 3(b), 3(c) such as for an output color point (211) that lies in a color gamut of a hard copy printer (202), which reads on "for a chromatic color such that the point of convergence has the same hue value as a hypothetical chromatic color that would be reproduced by the information-output apparatus", based on an input color point (209) that lies in a color gamut of a CRT monitor (201), which reads on "based on a digital signal value for the information-input apparatus corresponding to a color determined by a source color, and lies inside the color gamut of the information-output apparatus", (col. 4, lines 40-43; 51-54; 63-66). Ohta inherently teaches,

of a "first point of compression computation part", as evidenced by equation 3, and figures 3(b)-3(c), for computing an output point (y), which reads on "for computing a point of compression", (col. 4, lines 45-48). The point of compression (211), lies on the right of an equihue line, which reads on "such that the point of compression lies on a substantially straight line connecting the point of convergence and the source color, and lies inside the color gamut of the information-output apparatus, (col. 5, lines 8-11; lines 60-61). As shown in figure 2, the RGB inverse conversion unit (107), and the CMYK conversion unit (440), which read on "a compression part", compress the RGB input color from frame memory (42) into an output color gamut of an image forming unit (450), which reads on "converting the source color into a target color corresponding to the point of compression computed by said first point of compression computation part", (col. 5, lines 61-64).

Ohta fails to expressly disclose, that the point of convergence computation part computes the point of convergence such that the point of convergence has the same brightness level as one of four values for the hue value which is determined by the source color, the four values being maximum chroma, mean value of the color gamut, gravitational center value of the color gamut, and median of the color gamut.

However, Takahashi teaches, as shown in figures 3, that the point of convergence is the same point for brightness of the highest chroma (C; Saturation), which reads on "said point of convergence computation part computes the point of convergence such that the point of convergence has the same brightness level as one of four values for the hue value which is determined by the source color, the four values being maximum chroma", (col. 13, lines 1-5). The point of convergence has a point with an average value of the color gamut, which reads on

"mean value of the color gamut", a point with a weighted value of the color gamut of the information input apparatus, which reads on "gravitational center value of the color gamut", and a point with a central value of the color gamut of the information-input apparatus, which reads on "median of the color gamut", (col. 10, lines 34-45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Ohta's color gamut compression apparatus, with Takahashi's point of convergence computation part.

One of ordinary skill in the art would have been motivated to use Takahashi's point of convergence computation part in order to perform color gamut processing with higher reliability with respect to tonal direction, given the express suggestion of Takahashi, (col. 13, lines 13-15).

Regarding, **claim 22,** Ohta teaches that the first point of compression (211), as shown in figure 3(a), which reads on "wherein said first point of compression part, computes the point of compression" lies at the intersection of the parabolic line (210), which reads on "such that the point of compression is at an intersection of the substantially straight line", and the boundary of the output color gamut (202) of the printer, which reads on "and a boundary of the color gamut of information-output apparatus".

Regarding, **claim 23,** Takahashi teaches, as shown in figures 3, that the point of convergence is the same point for brightness of the highest chroma (C; Saturation), which reads on "said point of convergence computation part computes the point of convergence such that the point of convergence has the same brightness level as one of four values for the hue value which is determined by the source color, the four values being maximum chroma", (col. 13, lines 1-5). The point of convergence has a point with an average value of the color gamut, which reads on

"mean value of the color gamut", a point with a weighted value of the color gamut of the information input apparatus, which reads on "gravitational center value of the color gamut", and a point with a central value of the color gamut of the information-input apparatus, which reads on "median of the color gamut", (col. 10, lines 34-45). Further, Ohta teaches if the value of hue (H) is between the G, and C input colors, the value (A) corresponding to the hue of the input signal is obtained by performing a linear interpolation between the set values, as shown in figure 3(C), which reads on "when the source color is intermediate adjacent representative colors with respect to hue, the point of convergence is computed by linear interpolation of points of convergence corresponding to the adjacent representative colors", (col. 5, lines 15-18).

Regarding, **claim 24,** Ohta inherently teaches, "a point of convergence computation execution determination part for determining whether the source of is a chromatic color or an achromatic color" as evidenced by situations wherein the color saturation (C) is approaching achromatic (when the color saturation is low), the computed parameter (A) that depends only on the hue (h) value is corrected using equation 4, to obtain a corrected parameter (A') that depends on both hue and color saturation (C), (col. 5, lines 35-45). Ohta inherently teaches, "a second point of compression computation part for computing, when said point of convergence computation part determines that the source color is an achromatic color, the point of compression such that the point of compression lies inside the color gamut of the information-output apparatus and has a zero chroma", as evidenced by substituting the corrected parameter (A'), into equation 3, in place of the uncorrected computed (A), when the color saturation is low, (col. 4, lines 42-47; col. 5, lines 35-42).

Regarding, **claim 29,** please refer to the corresponding rejection in claim 21.

Regarding, **claim 30,** please refer to the corresponding rejection in claim 22.

Regarding, **claim 31,** please refer to the corresponding rejection in claim 23.

Regarding, **claim 32,** please refer to the corresponding rejection in claim 24.

Allowable Subject Matter

19. **Claims 10-13, 25-28, 33-36** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form and would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito et al. US 6,388,674, see figures 4-5, (col. 3, lines 3-47).

Yamada et al. US 5,742,296, see figure 2, (col. 6, lines 46 through col. 7, lines 11).

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie M Vida whose telephone number is (703) 306-4220. The examiner can normally be reached on 8:30 am 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-6743.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Melanie M Vida
Examiner

Art Unit 2626

MMV
mmv

November 10, 2003

KA Williams
KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER